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### Virological surveillance of Dengue in 4 provinces of northern Thailand, 2008 through 2011

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**Background:** Dengue Hemorrhagic Fever is an epidemic infectious disease caused by Dengue virus. It is a major disease found in many provinces of Thailand, including northern part. Virological surveillance of Dengue in 4 provinces as Chiangmai, Lumphun, Lumpang and Mae hong sorn province was surveyed for the percentage of dengue infection and dengue serotype, pattern of antibody response and dengue serotype distribution.

**Methods:** During January 2008 through December 2011, the number of 10,164 clinical prediagnosis of dengue infection cases were established at hospitals in 4 Provinces. The samples were sent to Regional Medical sciences Center 10 for dengue laboratory confirmation. Dengue IgM and IgG antibody test was evaluated by Capture Enzyme Linked Immunosorbent Assay (Capture ELISA) and Dengue serotype was used by Reverse Transcriptase Polymerase Chain Reaction (RT-PCR).

**Results:** Dengue infection was confirmed in 55.7% of total samples and 83.8% of which had shown secondary dengue infection pattern. Most of dengue infection were found in adult age group more than 25 year in 42.8%, following in group 15-24 year 27.3%, group 10-14 year 21.0% and group 5-9 year 7.8%, respectively. In gender group, both ratio of infection are not different. Dengue serotype was determined in 558 cases, 59.7% were DNA positive. In year 2008 and 2009, serotype Dengue-1 was predominant as 74.3% and 61.4%, respectively. Whereas, serotype Dengue-2 was predominant as 59.3% in 2010 and 81.9% in 2011.

**Conclusion:** Our results indicated that the change of predominant dengue serotypes was affected in group of non immunity population to new predominant; the new case has been increasing in this region. The receiving information will fulfill in the surveillance system and the program of knowledge management of dengue infection should be supported continuously to all age group for the effectiveness of prevention and control of dengue infection.

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### Prevalence and and molecular characterization of *Salmonella enterica* Serovar Typhimurium from ice and beverages sold in Jakarta, Indonesia, using most probable number and multiplex PCR

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**Background:** The presence of *Salmonella enterica* serovar Typhimurium is concern for the safety of drinking water and ice. beverages that are popularly vended and consumed in Jakarta, Indonesia.

**Methods:** In this study, we have detected and enumerated *Salmonella enterica* serovar Typhimurium from ice and beverages collected from several areas comprising five different regions of Jakarta, Indonesia. A total of 50 beverages and 50 ices were colected from five areas of Jakarta.

**Results:** Enumeration of these bacteria in both ice and beverages was determined by using three-tube Most Probable Number (MPN) method, and ranged from < 0.3 to > 110 MPN/ml. The highest MPN value >11000 MPN/mL were found in beverage sample B.EJ.4 and ice sample I.WJ.9.

The presence of virulence genes sequences were determined by using multiplex PCR with specific genes *rfbJ*, *fliC*, and *fljB*. Twenty one of 424 suspected colonies (4.95%) from beverage sample and 17 of 568 suspected colonies (2.99%) from ice sample were indicated as positive isolates of *S. enterica* serovar Typhimurium. The results of antibiotic resistance assay were varied among all isolates. The highest percentage of resistance for isolates from beverages is 71.43% to gentamicin (10 μg), and the lowest is 9.52% for trimethoprim (5 μg). While for isolates from ice, the highest percentage of resistance 82.35% shown for streptomycin (10 μg) and erythromycin (15 μg), and there is no resistance isolates for trimethoprim (5 μg).

**Conclusion:** The presence of *Salmonella enterica* serovar Typhimurium from ice and beverages in Jakarta indicate the risk of Salmonella infection.

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### Establishment and evaluation of web-based infectious disease syndromic surveillance for School children (WIDSSS) in Taipei

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**Background:** In facing the continuing threat of infectious diseases, to which school-aged children are most sensitive, an effective early outbreak detection system in school is essential for public health and social welfare. Following the raised level of pandemic influenza A alert in 2009, Taipei City Government implemented Taiwan's first Web-based Infectious Disease Syndromic Surveillance for Schoolchildren (WIDSSS) beginning from January 2010. This report describes the challenges and steps involved in developing WIDSSS and the timely information it provides to improve in public health decision-making.

**Methods:** As a collaborating system, WIDSSS recruited 3 major Departments in Taipei City Government including Health, Education, and Social & Welfare. School nurses and teachers reported disease syndrome and absenteeism of common pediatric infectious diseases like influenza, enterovirus, and others. A case cluster was

defined by three or more epidemiologically-linked cases of students within each three consecutive days. Automatically detected clusters and weekly reports were analyzed by epidemiologists and sent to staffs in charge. WIDSSS was evaluated for its sensitivity by comparing the epidemic curves to preexisting communicable disease surveillance system from Centers for Disease Control in Taiwan (Taiwan-CDC). Additional attributes including acceptability, simplicity, timeliness, and overall usefulness were also evaluated.

**Results:** WIDSSS involved 3675 institutions from kindergartens to colleges and even private cram schools with 100% coverage rate under government authorities. After the implementation of WIDSSS, spikes of enterovirus severe cases had decreased from 2010. WIDSSS had identified comparable trends in cumulated case numbers of influenza-like illness and enterovirus cases with those patterns through surveillance systems in Taiwan-CDC, but having the limitation of window period owing to school closure during winter and summer vacations (Jan-Feb & Jul-Aug). Using WIDSSS in school has improved Taipei's disease control capabilities and schoolchildren health promotion.

**Conclusion:** This integrated service network collected timely and accurate syndromic surveillance data of schoolchildren. The real-time response system helps monitor spread of infectious diseases, and assists government to improve decision-making for health and epidemic policy control. WIDSSS could be widely applied to other cities of Taiwan and even adapted to cross-cultural environments in other areas in Asia through international collaboration for better global surveillance.

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## Selecting representative medications for integrated syndromic surveillance in pharmacies in rural China

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**Background:** Medication sales in pharmacy, as an early indicator of infectious disease outbreaks, were adopted in syndromic surveillance in many countries. From August 1st, 2011 to January 31st, 2012, we monitored 119 medications of 5 categories (39 compound cold medications, 39 cough suppressants, 18 antibiotics, 8 antipyretics and 15 antidiarrheals) for influenza-like illness and gastrointestinal infection from 2 county pharmacies and 7 township pharmacies in rural Jiangxi Province,China. In pharmacies without electronic sales system, sales data was manually recorded and input daily by data collectors (usually the sales assistants) to a web-based platform of an ongoing research project on integrated surveillance system (ISSC). Considering the huge workload of data collection, we plan to reduce the number of monitoring medications through identifying the most frequently purchased medications.

**Methods:** Data were grouped into 3 settings: two for the two county pharmacies, and one for the aggregation of all township pharmacies for its lower sales volume. In each setting, we ranked medications by descending sales volume under every category and selected medications from the top until the sales volume reaches 70% of the category sum. Given the difference in consumer purchasing habits, every finally selected medication should be present at least in two settings. Linear correlation analysis was used to examine the correlation between the selected and the original medications in each category.

**Results:** Totally 26 of the 119 medications including 7 compound cold medications, 9 cough suppressants, 3 antibiotics, 3 antipyretics and 4 antidiarrheals were selected as representative medications, which accounted for 66.2% of the total sales volume of all pharmacies. The Pearson correlation coefficients between the selected and originals for the 5 categories were 0.973($P$<0.001), 0.923($P$<0.001), 0.908($P$<0.001), 0.847($P$<0.001), and 0.937($P$<0.001) respectively.

**Conclusion:** The selected 26 medications could represent the original 119 medications in accordance with the high correlation. For surveillance in pharmacy in less developed rural area, selecting the most popular and representative medications for reporting is a good solution for reducing workload of data collectors and improving validity of data.

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## Low rate of HBV, HCV, HIV and syphilis seropositive among volunteer blood donors at omair sana foundation. a three year experience

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**Background:** Infectious pathogens in blood are a prospective source of transmission of Hepatitis B and C, Human Immunodeficiency Virus (HIV) and Syphilis. Trends of HBV, HCV, HIV and Syphilis seropositive are different in volunteer Blood Donors. The present study reviews the frequency of serologic evidence of HBV, HCV, HIV and Syphilis over a period of three year at Omair Sana Foundation, Karachi

**Methods:** In this study 1511 healthy blood donors' age 18-45 years included from August 2009 to December 2011.All the donors were screened for HBV, HCV, HIV and Syphilis using commercial assays .Blood group of each individual was also determined.

**Results:** The frequency of serologic evidence of various infectious pathogens among volunteer blood donor are 1.52% for hepatitis B surface antigen (HBsAg), 1.65% for anti- HCV, 0.14% for HIV and 0.79% for syphilis.

**Conclusion:** The seroprevalence of HBV,HCV, HIV and syphilis is very low, a result of adopting higher assay sensitivity and stricter selection criteria, evidenced by the detailed questionnaire that all blood donors must complete (and sign) prior to testing of their blood.